# Appendix: Methods

## IRB Support

This work was completed under IRB*# 12847* through the NC State Institutional Review Board*.* Participants were given a copy of the study information sheet and verbal consent template prior to providing their verbal consent to be interviewed.

## Interview Guide

We used a qualitative approach (O’Leary, 2017) to explore local officials’ and community adult perceptions of youth in public political spheres. More specifically, we wanted to understand the nuances of drivers for attendance at youth-led events, overall reactions to the youth-led events, adult perceptions of youth roles in solving community environmental challenges, and, when appropriate, whether the context of COVID-19 might have affected their responses. Questions in the interview guide (Table 1 in manuscript) were designed with six Faculty members from North Carolina State University and the developer of the curriculum from the Duke University Marine Lab (DeMattia et al., 2020). Questions were then reviewed with qualitative experts from Duke University and piloted with a random sample of community adults from the Raleigh, North Carolina area. Our qualitative, intercept-interview approach also allowed us to explore the themes of interest without potentially biasing responses with a quantitative instrument.

Participants were engaged in one of two ways; either via email or intercepted at the in-person Fuquay-Varina Town Hall event. Identities were never asked and if known, were kept anonymous and de-identified in transcripts so as to meet the requirements for protecting research subjects. To recruit local officials via email, we first built a sample frame of mayors, School Board officials, Town Hall members, Soil, Water, & Conservation officials, county commissioners, city council members, school Superintendents, and members of Environmental Affairs Boards (where applicable) from all 100 counties in North Carolina. We prepared this sample frame by searching county and municipal websites for email addresses, and where there were no email addresses provided, we followed up by phone to gather contact information. For the first recruitment method (i.e., email recruitment), in Fall 2019, emails with links to student-made PSA videos (*n* = 110) were sent to local officials from Carteret (*n* = 24), Wake (*n* = 30), New Hanover (*n* = 30), and Forsyth (*n* = 26) counties. Those counties were selected because participating schools in those counties had developed PSA videos during the 2018-2019 school year. From those emails, local officials self-selected to be interviewed for this study (*n* = 2). All participants were read a verbal consent form and gave verbal consent to participate and be recorded for transcription purposes.

For the second participant recruitment method (in-person intercept interviews), we interviewed community adults and local officials after the student presentation at a February 2020 Fuquay-Varina Board of Commissioners town hall meeting (*n* = 16; local officials: *n* = 2; community adults: *n* = 14).

Semi-structured intercept interviews were conducted by three researchers on the project and ranged from 30 seconds to 5 minutes long (intercept interviews) or 20-30 minutes long (phone interviews after viewing PSA videos). Researchers recorded interviews using voice recording software tools (e.g., otter.ai and Easy Voice Recorder) and supplemented interview transcriptions by manually taking notes during interviews to reduce bias. Audio files were then transcribed into Word documents to be used in later analyses. Pseudonyms were selected to replace the participants’ real names.

## Data Analysis

Transcriptions of the interviews were conducted by hand in the days and week following each of the interviews in order to prepare them for coding and analysis. All transcriptions were then uploaded into the NVivo software, Version 12 Pro (QSR International, 1999). Prior to conducting the interviews, we created a coding framework (i.e. codebook), which was designed and condensed into a coding hierarchy (Bazeley & Jackson, 2015). For reference, the codebook shows definitions for all codes and an example of something that applies to each code from this research project, specifically. In addition to the deductive method of building a coding framework prior to conducting interviews, the researchers also conducted inductive thematic analysis of the interviews, during which time more themes and subthemes emerged from the transcripts and were added to the existing codebook (O’Leary, 2017). Themes and subthemes were shaped by careful readings of all collected data and then iterative cycles of analysis, during which time the authors read over the transcripts for word repetition, explored context and usage of certain concepts and words, and examined the interconnections therein (O’Leary, 2017).

Table . Codebook with examples of themes from interview transcripts.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Code** | **Definition** | **Example** |
| **1** | **Positive Attitude** | Adults who are enthusiastic about youth being involved in their communities and/or learning about marine debris. | *“...letting these kids know, in their early age, that their voice can make changes in their small community…”* |
| **2** | **Negative Attitude** | Adults who do not show enthusiasm for youth-led marine debris events or for youth involvement in community decisions. |  |
| **3** | **Presentation Method** | Tools, methods and strategies that youth use in their presentations/PSAs. | *“I like the statistics of how long things take to break down that really helps to give it scale.”* |
| **4** | **Youth/Adult Action** | Actions youth and/or adults are taking/could take in their communities to create change. | *“I think if enough people say, I don't want a straw, I don't want to ruin the environment…”* |
| **5** | **Youth Roles** | How adults view youth in their communities and what roles they can take. | *“I think they're going to be the leaders, honestly, because they're the ones that have the ideas, they're flexible and open to being those change makers…”* |
| **6** | **Influence of COVID-19** | The interaction between COVID and environmental issues. Is one more important? Do they relate to each other? | *“So I think in that regards when we have cleaning products, right with COVID and how that links to the environment is, if it's some kind of chemical that disinfects is it safe for small children to use or a pet to be around or is, you know, recyclable.”* |
| **7** | **Inspiring** | Adults find youth as an influence on them as well as their communities. | *“So now, hearing their statistics I'll probably make a lot more effort to use reusable bags and take other steps to keep stuff out of the landfill.”* |
| **8** | **Support** | Adults want to support youth in their communities (e.g. through education, participation, etc.). | *“And I think that that's kind of the key to changing things letting these kids know, in the early age and know that their voice can make changes in their small community.”* |
| **9** | **Bridge Barriers** | Adults believe that youth can bridge barriers to action in their communities, in politics, and in adult education. | *“I really do think that the voice of the young people in this is so important because there's such a divide between old policymakers and legislators.”* |

# Appendix: Forms

## Verbal Consent Template

Hi, my name is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and I am an NC State student conducting interviews with community adults and local officials about marine debris for a statewide research project. May I have 5-10 minutes of your time to answer some questions? Please read the following form prior to consenting to participate.

Responses will be confidential and are completely voluntary - your identity will never be revealed or connected to you in any way. You can skip questions or stop at any time. The responses will be reported as journal articles at the conclusion of the study.

Do you have any questions? If you have any questions you can contact the project lead at jenna\_hartley@ncsu.edu.

Do you mind if I record so that I can keep track of what you said afterwards? As a reminder, responses will be completely confidential and none of this will be connected to you.

## IRB

**North Carolina State University**

**COMMUNITY MEMBER INFORMED CONSENT FORM for RESEARCH**

**Title of Study**: *Improving environmental decision-making in coastal communities through children: Building science literacy, civic engagement, and coastal resilience with K-12 citizen science, eIRB # 12847*

**Principal Investigator**: Jenna Hartley, jenna\_hartley@ncsu.edu, 919-614-0050

**Faculty Point of Contact:** Dr. Kathryn Stevenson, kathryn\_stevenson@ncsu.edu, 919-515-2739

**What are some general things you should know about research studies?**

You are being asked to take part in a research study*.*  Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate, or to stop participating at any time without penalty.  The purpose of this research study is to gain a better understanding of the power of 4th and 5th grade students in North Carolina as environmental change-agents in their families and communities on the topic of marine debris.  We will do this through surveys of teachers, students, those students’ parents, and community members before and after the implementation of a marine debris curriculum.

You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate.  You may want to be in this research because you or your student is passionate about environmental issues or civic engagement that benefits both the planet and local communities.  You may not want to participate in this research because you do not wish to share your opinion on environmental matters.

In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above or the NC State IRB office (contact information is noted below).

**What is the purpose of this study?**

The purpose of this study is to evaluate the effectiveness of a Duke University Marine Lab Marine Debris curriculum in building marine debris literacy among 4th and 5th students and their parents.

**Am I eligible to be a participant in this study?**

There will be approximately 2,500 participants in this larger study; ~60 in this subset of local officials or community adults.

In order to be a participant in this study you must fall into one of the following groups: current 4th and 5th grade teachers,  students, and associated parents and/or guardians across North Carolina, as well as their teachers; person viewing a community event or engagement product (e.g., video PSA) generated by students enrolled in the study. You cannot participate in this study if you do not meet the criteria listed above.

**What will happen if you take part in the study?**

If you agree to participate in this study, you will be asked to do all of the following:

1. Undergo a semi-structured qualitative interview protocol after engaging in the community outreach event or watching the video PSA generated by students.

The total amount of time that you will be participating in this study is approximately 2-10 minutes to participate in the interview, plus any time you choose to engage with the event or engagement product.

**Risks and benefits**

There are minimal risks associated with participation in this research. There are no direct benefits to your

participation in the research. The indirect benefit is that this study will give teachers in your community

more background information and curricular resources to instruction around the topic of marine debris.

**Right to withdraw your participation**

You can stop participating in this study at any time for any reason. In order to stop your participation, please contact Jenna Hartley at jenna\_hartley@ncsu.edu. If you choose to withdraw your consent and stop participating you can expect to be replied to within 48 hours to confirm.

**Confidentiality, personal privacy, and data management**

Trust is the foundation of the participant/researcher relationship. Much of that principle of trust is tied to keeping your information private and in the manner that we have described to you in this form. The information that you share with us will be held in confidence to the fullest extent allowed by law. Protecting your privacy as related to this research is of utmost importance to us.

How we manage, protect, and share your data are the principal ways that we protect your personal privacy. Data generated about you in this study will be de-identified. Although we will never ask you your name, we will still create pseudonyms to associate with your responses in the study.

**De-identified**. De-identified data is information or bio-specimen(s) that at one time could directly identify you, but that we have recorded this data so that your identity is separated from the data. We will have a master list with your code and real name that we can use to link to your data. While we might be able to link your identity to your data at earlier stages in the research, when the research concludes, there will be no way your real identity will be linked to the data we  publish. Data that will be shared with others about you will be anonymous because we will never ask nor have access to any of your identifying information.

**Compensation**

There is no compensation for participating in this study.

**What if you have questions about this study?**

If you have questions at any time about the study itself or the procedures implemented in this study, you may contact the researcher, Jenna Hartley: jenna\_hartley@ncsu.edu, (919) 614-0050.

**What if you have questions about your rights as a research participant?**

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the NC State IRB (institutional Review Board) Office via email at irb-director@ncsu.edu or via phone at 1.919.515.8754. An IRB office helps participants if they have any issues regarding research activities.

You can also find out more information about research, why you would or would not want to be a research participant, questions to ask as a research participant, and more information about your rights by going to this website: http://go.ncsu.edu/research-participant

**Consent To Participate**

By responding “yes” after the verbal consent statement is read and prior to beginning the interview, you are verifying that you agree with the following statement:

*“I have read and understand the above information.  I have received a copy of this form.  I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”*

# References

Bazeley & Jackson. (2015). Qualitative Data Analysis with NVivo. In (Second ed., pp. 178-191):

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DeMattia, E., Quattrone, C., Harshbarger, A. (2020). Program on Marine Debris:

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